

U.S. Patent Application Serial No. 10/712,802
Reply to Office Action dated August 19, 2005

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1-3. (Cancelled)

4. (Original) A scanning apparatus according to claim 1, wherein the support assembly includes a five bar spherical closed loop linkage.

5. (Original) A scanning apparatus according to claim 4, wherein the linkage is rotatably mounted relative to the scanner.

6. (Original) A scanning apparatus according to claim 4, wherein the support assembly further comprises an article holder rotatably mounted to the linkage.

7. (Original) A scanning apparatus, comprising:

a scanner having a measuring device for measuring the shape of a scanned article;

a linkage comprising:

a first ground link;

a second link rotatably mounted to the first link about a first axis;

a third link rotatably mounted to the second link about a second axis;

a fourth link rotatably mounted to the third link about a third axis;

U.S. Patent Application Serial No. 10/712,802
Reply to Office Action dated August 19, 2005

a fifth link rotatably mounted to the fourth link about a fourth axis and rotatably mounted to the first link about a fifth axis;

an article holder mounted to one of the links adapted for supporting an article to be scanned exterior of a sphere defined by the linkage;

wherein the scanner and article holder are movable relative to one another to scan the surface of the article.

8. (Original) A scanning apparatus according to claim 7, wherein the links are adapted for moving along paths of motion that avoid the scanner beam.
9. (Original) A scanning apparatus according to claim 7, wherein the article holder is adjustable to accommodate a range of article shapes and sizes.
10. (Original) A scanning apparatus according to claim 7, wherein the article holder is rotatably mounted to the linkage.
11. (Original) A scanning apparatus according to claim 10, wherein the article holder further comprises a drive motor for rotating the article holder relative to the linkage.
12. (Original) A scanning apparatus according to claim 7, wherein the article holder is adapted for holding the article in alignment with an axis of rotation between two of the links.
13. (Original) A scanning apparatus according to claim 7, wherein the first ground link is rotatably mounted to a scanner support.
14. (Original) A scanning apparatus according to claim 7, wherein the linkage is adjustably mounted relative to the scanner to provide a third degree of freedom.
15. (Original) A scanning apparatus according to claim 7, wherein the article holder is adjustably mounted relative to the linkage to provide a third degree of freedom.

U.S. Parent Application Serial No. 10/712,802
Reply to Office Action dated August 19, 2005

16. (Original) A scanning apparatus according to claim 14, wherein the article holder is adjustably mounted relative to the linkage to provide a fourth degree of freedom.
17. (Original) A scanning apparatus according to claim 7, wherein the linkage includes a first driver and a second driver.
18. (Original) A scanning apparatus according to claim 17, wherein the linkage mounts to an arm adjustably mounted to a scanner support and wherein the arm includes a third driver.
19. (Original) A scanning apparatus according to claim 17, wherein the article holder is adjustably mounted relative to the linkage and wherein the article holder includes a third driver.
20. (Original) A scanning apparatus according to claim 19, wherein the article holder is adjustably mounted relative to the linkage and wherein the article holder includes a fourth driver.
21. (Original) A scanning apparatus according to claim 1, wherein the linkage includes a first pair of symmetrical links having a first included angle.
22. (Original) A scanning apparatus according to claim 21, wherein the linkage includes a second pair of symmetrical links having a second included angle.
23. (Original) A scanning apparatus according to claim 1, wherein the linkage includes a first driver mounted to a first axis of one of the links and a second driver mounted to a second axis of one of the links.
24. (Original) A scanning apparatus according to claim 1, wherein the joints include encoders in communication with a controller for coordinating actuation and movement.
- 25-32. (Cancelled)